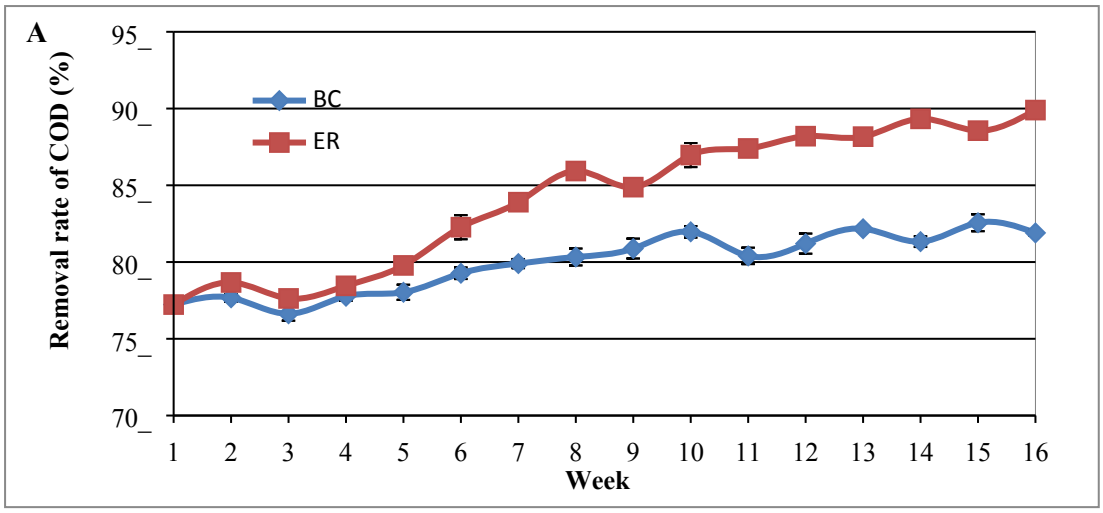
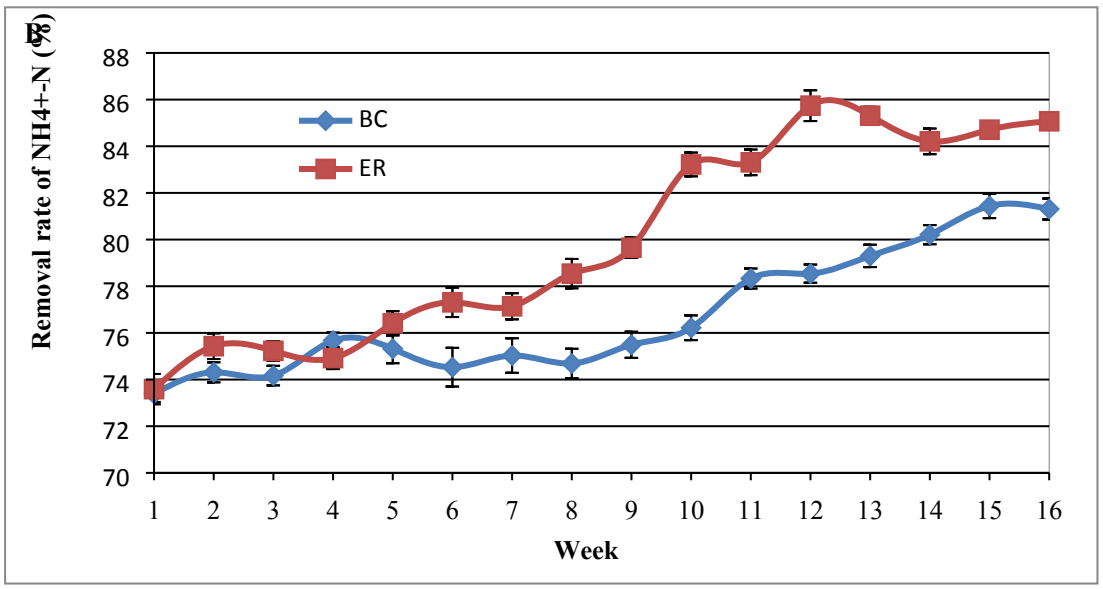
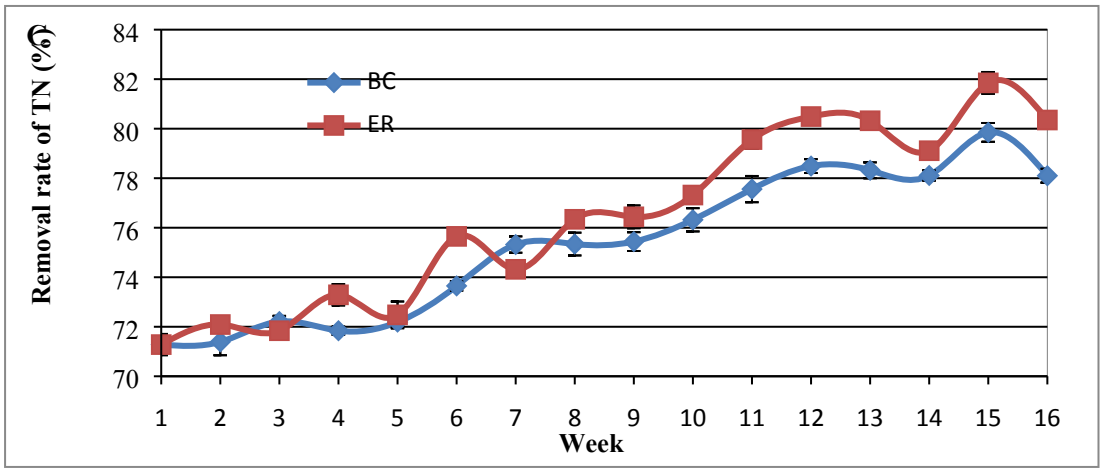
Electronic Supplementary Material (ESI) for RSC Advances.







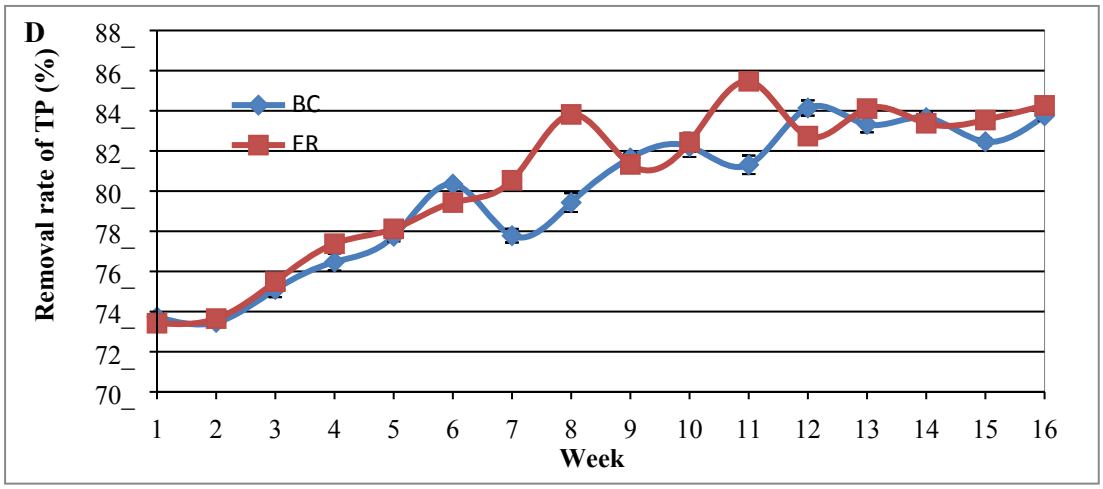


Figure S1 - COD concentration (A), ammonia concentration (B), TN concentration (C) and TP concentration (D) in the effluent of each SBBR. BC = blank control; ER = experimental reactor. Error bars are defined as standard error of the mean (n = 3, biological replicates).

Table S1 Composition of synthetic wastewater

substance	concentration（mg/L）
CH_3COONa	600
NH_4Cl	69
$MgSO_4 \cdot 7H_2O$	32.04
$CaCl_2$	2.45
KH_2PO_4	21.75
yeast extract	14
elements solution	0.5 ml

Table S2 Composition of trace elements solution

substance	concentration（mg/L）
$FeCl_3 \cdot 6H_2O$	1.5
$CuSO_4 \cdot 5H_2O$	0.03
H_3BO_3	0.15
KI	0.18
$MnCl_2 \cdot 4H_2O$	0.12
$NaMoO_4 \cdot 2H_2O$	0.06
$ZnSO_4 \cdot 7H_2O$	0.12
$CoCl_2 \cdot 6H_2O$	0.15
EDTA	10

Table S3 Parameter of the synthetic wastewater

Item	Range (mg/L)	Average (mg/L)
COD	367-484	420
BOD_5	35-91	70
TN	39-73	56
TP	2.8-6.5	4.7
SS	106-224	150
PH	7.3-7.9	7.5

Table S4 Multi MRMs and optimized MS/MS parameters

AHL	Screening time (min)	Retention time (min)	Transitions[1]	Dwell	Cone	Collision
C4-HSL	/	/	172.2 →102.1 172.2 →71.1	0.015	22	12
3-oxo-C6-HSL	/	/	214.2 →102.1 214.2 → 71.1	0.015	22	12
C6-HSL	1.81-2.18	2.12	200.2 → 99.1 200.2 →102.1	0.015	20	10
3-oxo-C8-HSL	/	/	242.2 →102.1 242.2 → 71.3	0.015	22	12
C7-HSL	/	/	214.2 →113.1 214.2 →102.1	0.015	22	12
C8-HSL	5.25-5.87	5.53	228.2 →127.1 228.2 →102.1	0.015	22	12
3-oxo-C10-HSL	/	/	270.3 →102.1 270.3 →169.1	0.015	22	12
C10-HSL	/	/	256.3 →102.1 256.3 →155.1	0.015	22	12
C12-HSL	/	/	283.3 →102.1 284.3 →183.2	0.015	22	12
3-oxo-C12-HSL	13.39-14.46	14.25	298.3 →102.1 298.3 →197.2	0.015	22	12
C14-HSL	18.85-19.16.	19.05	312.4 →102.1 312.4 →211.3	0.015	22	12

[1]All standards were analysed in the ESI-positive mode. Two most prominent transition ions generated from each precursor ion based on the optimized MS/MS parameters were chosen. The first MRM transition was used for quantification while the second MRM transition was used for identity confirmation. The desolvatation temperature was 350 °C, and the source temperature was 150 °C. The capillary voltage was set at 1.5 kV and the cone voltage was set at 30 V. Nitrogen gas was used as desolvatation gas and as cone gas. Nitrogen gas was produced using a NM30L nitrogen generator (Peak Scientific, Renfrewshire, Scotland).